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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/892,036	Applicant(s) MATERO ET AL.	
	Examiner Andrew Graham	Art Unit 2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 September 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7,9-26 and 28-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7,9-26 and 28-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/27/03</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Response to Amendment

1. The amendment submitted September 14, 2004, has been entered into the case. References made to the claims in this office action reflect this most recently submitted version of the claims.

The indicated allowability of claims 1-7.9-16.20-26.28-33 and 36-41 is withdrawn in view of the newly discovered reference(s) to Cuddy (USPN 6246761 B1), Cannon et al (USPN 6269257), Makela et al (USPN 6501967), Grothouse (USPN 4904992), and Lilja (USPN 5844983). Rejections based on the newly cited reference(s) follow.

Information Disclosure Statement

2. The information disclosure statement (IDS) received October 27, 2003 was filed after the mailing date of the non-final office action on July 16, 2003. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement has been considered by the examiner.

Claim Objections

3. Claims 9, 13-15, 28, and 30-32 are objected to because of the following informalities:

Claim 9 recites dependence on Claim 8, but Claim 8 has been cancelled. Reviewing prosecution history, the previous claim, Claim 8, recited dependence from Claim 1. Therefore, for the purposes of

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prosecution in the present action, Claim 9 is presumed to be dependent upon Claim 1.

Similarly, Claim 28 recited dependence upon Claim 27, which has now been cancelled. For the purposes of prosecution in the present action, Claim 28 is presumed to be dependent upon Claim 20, which was the parent claim of Claim 27.

Claims 13 and 30 recite the limitation "the user interface " in the fifth line of each claim. There is insufficient antecedent basis for this limitation in the claim.

Claims 14-15 and 31-32 are objected to on the same grounds because of their respective dependencies upon Claims 13 and 30.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-5, 10-13, 15-16, 20-24, 29-30, 32-33, 36-38, and 41 are rejected under 35 U.S.C. 102(e) as being anticipated by Cuddy (USPN 6246761).

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Cuddy discloses a system for automatically controlling characteristic of a reproduced tone according to the ambient noise and environment surrounding the tone-reproducing device.

Regarding Claim 1, Cuddy teaches:

A portable device (col. 4, lines 12-17) comprising:

control means (24, carries out processes of Figure 3) for controlling the operation of the device (col. 4, lines 49-63);

tone means (comprising 26, 32, 12; Figure 2) that are controlled by the control means and that produce sound (18) electroacoustically (DSP 24 generates a signal, output by 26, 32, 12; col. 6, lines 1-4)

which control means are arranged to give feedback (indication of incoming call) on the operation of the device by using a tone produced by the tone means (generation of signal in response to trigger 22; col. 4, lines 64-67; col. 5, lines 1-9, 29-38; processes 54 and 60 in Figure 3); and

determining means (comprising 14, 36, 38) for determining the volume of background noise of the usage environment of the device (col. 4, lines 66-67; col. 5, lines 1-3 and 39-46),

on the basis of which background noise volume the control means are arranged to automatically adjust tone features (process steps 52,58; col. 5, lines 1-5 and 25-29) including at least one of a tone frequency and a tone duration that can be sensed by hearing, such that the tone is distinguished from background noise by a human hearing sense ("acoustic properties" of Cuddy include frequency, tone

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frequency chosen to avoid making by ambient noise; col. 3, lines 63-67; col. 5, lines 46-67).

Regarding Claim 2, Cuddy teaches:

wherein the control means (DSP 24) automatically adjusts the tone frequency (col. 5, lines 6-16) and the duration (upon answering, determining continues until answering at which point generation, and at least the length of the entire tune, ends; col. 5, lines 33-38).

Regarding Claim 3, Cuddy teaches:

wherein the determining means are arranged to determine the volume of background noise at different frequencies (col. 4, lines 1-3; col. 50-67), and the control means are arranged to produce a tone particularly at such frequencies where the volume of background noise is low ("sufficiently different frequency", col. 3, lines 55-67)

Regarding Claim 4, Cuddy teaches:

the tone features include tone volume (col. 3, lines 67; col. 4, lines 1-3; col. 5, lines 9-16).

Regarding Claim 5, Cuddy teaches:

the control means are arranged to produce a tone that is louder than background noise (col. 5, lines 3-16)

Regarding Claim 10, Cuddy teaches:

wherein the determining means comprise conversion means (14) for performing an acousto-electric conversion for background noise and the control means (col. 4, lines 39-42 and 66-67; col. 5, line 1), which control means are arranged to determine the volume of background noise

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by analyzing an electric signal representing background noise (process 50; col. 5, lines 43-46).

Regarding Claim 11, Cuddy teaches:

wherein the conversion means are a microphone (12) (col. 3, lines 39-42).

Regarding Claim 12, Cuddy teaches:

wherein the tone means are a loudspeaker or a piezoelectricity functioning circuit (output transducer 12 is loudspeaker by virtue of sound being heard at least over distance involved with muffling environment 16; Figure 1; col. 7, lines 27-29 and 46-50).

Regarding Claim 13, Cuddy teaches:

wherein the control means are arranged to receive a control (indication of answering) relating to at least one of the tone features that can be sensed by a human hearing sense (answering is a result of user detection of ringing tone) and controlling the tone production carried out by the user interface of the portable device (ending of subsequent testing and optimizing; col. 5, lines 33-38).

Regarding Claim 15, Cuddy teaches:

those tone durations that are automatically selectable for the control means are selected by the control (upon answering, determining continues until answering at which point generation, and at least the length of the entire tune, ends; col. 5, lines 33-38).

Regarding Claim 16, Cuddy teaches:

wherein the portable device is a subscriber terminal of a telecommunication system (col. 4, lines 13-17).

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Regarding Claim 20, Cuddy teaches:

A method of providing a user with information on the operation of a portable device, the method comprising:

detecting an event that interests the user and concerns the operation of the device (detection on incoming call by microprocessor that results in call signal 22; col. 4, lines 31-34 and 64-65)

determining the volume of background noise in the usage environment of the device (process 50; col. 5, lines 39-46)

adjusting automatically tone features including at least one of a tone frequency and a tone duration that can be sensed by hearing such that the tone is distinguished from background noise by a human hearing sense (col. 5, lines 3-5 and 10-16);

giving feedback on the operation of the device by using the tone (output of ringing tone, process 60; col. 5, lines 29-33).

Regarding Claim 21, please refer to the above rejection of the similar limitations of Claim 2.

Regarding Claim 22, please refer to the above rejection of the similar limitations of Claim 3.

Regarding Claim 23, please refer to the above rejection of the similar limitations of Claim 4.

Regarding Claim 24, please refer to the above rejection of the similar limitations of Claim 5.

Regarding Claim 29, please refer to the above rejection of the similar limitations of Claim 10.

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Regarding Claim 30, please refer to the above rejection of the similar limitations of Claim 13.

Regarding Claim 32, please refer to the above rejection of the similar limitations of Claim 15.

Regarding Claim 33, please refer to the above rejection of the similar limitations of Claim 16.

Regarding Claim 36, Cuddy teaches:

further comprising means for determining a frequency range of the background noise (col. 5, lines 43-46 and 50-57), wherein the control means is adapted to automatically adjust the tone to be in a frequency range that is inverse to the frequency range of the background noise (col. 3, lines 63-67).

Regarding Claim 37, Cuddy teaches:

wherein if a frequency range of the background noise is determined to be low, a frequency range of the tone is adjusted to be high (frequency sufficiently different from that of ambient noise is selected, col. 3, lines 63-67; ranges of ambient noise frequency characteristics are consulted, col. 5, lines 50-57; selected frequency is inherently in the audible frequency range).

Regarding Claim 38, please refer to the above rejection of the similar limitations of Claim 36.

Regarding Claim 41, Cuddy teaches:

wherein the determining means are arranged to determine the volume of background noise at different frequencies (col. 4, lines 1-3; col. 50-67), and the control means are arranged to produce a tone

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particularly at such frequencies where the volume of background noise is low ("sufficiently different frequency", col. 3, lines 55-67).

5. Claims 1, 2, 9, 20, 21, 28, and 40 are rejected under 35 U.S.C. 102(e) as being anticipated by Cannon et al (USPN 6269257). Hereafter, "Cannon et al" will be referred to as "Cannon".

Cannon discloses a system for adjusting the paging signal emitted from a portable handset of a telephone on the basis of a variety of conditions.

Specifically regarding Claim 1, Cannon teaches:

A portable device (109; col. 2, lines 49-57) comprising:

control means (circuitry of 117 that executes condition responsive function) for controlling the operation of the device (col. 3, lines 24-31);

tone means (113) that are controlled by the control means and that produce sound electroacoustically (col. 2, lines 54-57; col. 3, lines 20-22)

which control means are arranged to give feedback (indication of paging signal) on the operation of the device by using a tone produced by the tone means (generation of altering signal in response to pressing of page key; col. 2, lines 51-62); and

determining means (comprising 131,133) for determining the volume of background noise of the usage environment of the device (col. 5, lines 4-17; at least volume of ambient noise is measure by virtue of

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capability of raising alerting signal volume to exceed ambient sound in volume),

on the basis of which background noise volume the control means are arranged to automatically adjust tone features including at least one of a tone frequency and a tone duration that can be sensed by hearing (pitch is property of sound determined by frequency of received sound; col. 5, lines 18-19; dictionary definition (from Merriam Webster Online) particularly defines pitch as highness or lowness of sound), such that the tone is distinguished from background noise by a human hearing sense (pitch is made to be non-overlapping; col. 5, lines 18-21).

Regarding Claim 2, Cannon teaches:

the control means (117) automatically adjusts the tone frequency ("pitch") and the duration ("any combination" of characteristic, including pitch and duration, col. 4, lines 33-45; col. 5, lines 4-7)

Regarding Claim 9, Cannon teaches:

the control means are arranged to form a tone from notes (output tone is at least note, repeated use equates to notes) and

to make the individual notes sound longer when background noise is getting louder (desirable for paging volume to be greater than ambient noise volume, col. 5, lines 16-17; volume of paging signal increases proportionately with length of time button is pressed, at least until user can hear signal, col. 5, lines 50-55).

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Regarding Claim 20, please refer to the above rejection of the similar limitations of Claim 1, noting the function performed by the components cited therein.

Regarding Claim 21, please refer to the above rejection of the similar limitations of Claim 2.

Regarding Claims 28 and 40, please refer to the above rejection of the similar limitations of Claim 9.

6. Claims 17-19, 34-35, and 42-43 are rejected under 35 U.S.C. 102(e) as being anticipated by Makela et al (USPN 6501967 B1). Hereafter, "Makela et al" will be referred to as "Makela".

Makela teaches a system for defining the ring tones of a telephone.

Regarding Claim 17, Makela teaches:

A portable device (col. 3, lines 2-5) comprising:

control means (11) for controlling the operation of the device (col. 5, lines 32-36 and 43-61);

a user interface (10) in connection with the control means (col. 6, lines 45-51; Figure 4);

tone means (4) that are controlled (by 16 via 15) by the control means (11) and that produce sound electroacoustically (col. 5, lines 47-56)

which control means are arranged to give feedback (notification of incoming call) on the operation of the device by using a tone produced by the tone means (col. 5, lines 40-47); and

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the control means (11) are arranged to receive a control affecting at least one of a tone frequency and a tone duration (col. 4, lines 29-42; col. 6, lines 40-51) and controlling the tone production carried out by the user interface (col. 6, lines 45-51), and to adjust the at least one of a tone frequency and a tone duration according to the control (for example, col. 5, lines 2-7 and 16-19)

Regarding Claim 18, Makela teaches:

the tone means are a loudspeaker (col. 5, lines 54-56)

Regarding Claim 19, Makela teaches:

wherein the portable device is a subscriber terminal of a telecommunication system (col. 3, lines 2-11; Figure 1a).

Regarding Claim 34, please refer to the above rejection of the similar limitations of Claim 17, noting the function of the components cited therein.

Regarding Claim 35, please refer to the above rejection of the similar limitations of Claim 19, respectively.

Regarding Claim 42, Makela teaches:

wherein the control affects and adjusts both the tone frequency and duration (col. 4, lines 33-42).

Regarding Claim 43, please refer to the above rejection of the similar limitations of Claim 42.

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 6, 7, 25, 26, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cuddy as applied above, and in further view of Grothause (USPN 4904992).

As detailed above, Cuddy discloses a system for automatically controlling characteristic of a reproduced tone according to the ambient noise and environment surrounding the tone-reproducing device.

While the volume, frequency, and cadence of a ring signal may be altered in the system of Cuddy based on the ambient noise, Cuddy does not specify:

- that the tone features include the moment of time at which the tone is produced

Grothause teaches a variable message reception indication system for a radio signal-receiving device that automatically adjusts in response to properties of detected ambient noise.

Specifically regarding Claim 6, Grothause teaches:

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the tone features include the moment of time at which the tone is produced (enunciation of message reception is delayed, col. 3, lines 53-68).

To one of ordinary skill in the art at the time the invention was made, it would have been obvious to modify the incoming call indication system of Cuddy to include the components taught by Grothause that provide the capability of storing or delaying the output timing of the incoming signal indication. Such delaying or storing means would have been desirable because they would have enabled a user to receive indication of an incoming call without overriding a preferred indication signal format or outputting an audible signal under unfavorable conditions.

Regarding Claim 7, Grothause particularly specifies:

the determining means (12 of Grothause) are arranged to determine the moment at which a sudden background noise of short duration occurs (input from 12, compared with threshold; col. 2, lines 6-24), and the control means are arranged to produce a tone nonsimultaneously with the moment at which background noise occurs (enunciation output after ambient noise falls below threshold, function performed by controller 18; col. 3, lines 53-60).

Regarding Claim 25, please refer to the above rejection of the similar limitations of Claim 6.

Regarding Claim 26, please refer to the above rejection of the similar limitations of Claim 7.

Regarding Claim 39, Grothause teaches:

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determining duration of the background noise (by virtue of storing or delaying until threshold not exceeded; col. 53-57; looping per threshold, Figure 3)

if the duration is short, producing the tone a predetermined period after and end of the duration of the background noise (delays until threshold exceeded, col. 3, lines 53-60).

8. Claims 14 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cuddy as applied above, and in further view of Lilja (USPN 5844983).

As detailed above, Cuddy discloses a system for automatically controlling characteristic of a reproduced tone according to the ambient noise and environment surrounding the tone-reproducing device.

Regarding Claim 14, Cuddy does not specify:

- those frequency ranges which are automatically selectable for the control means are selected by a control

Lilja teaches a system for controlling a telephone ring signal in regards to amplitude and frequency based on the spectral and amplitude characteristics of ambient sound.

Specifically regarding Claim 14, Lilja teaches:

those frequency ranges (subbands) which are automatically selectable for the control means (as "chosen" subband) are selected by a control ("designated" status indicator) (on the basis of the designation, a preferred subband is chosen, unless the noise level is unacceptable; col. 4, lines 1-9)

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To one of ordinary skill in the art at the time the invention was made, it would have been obvious to designate and preferably use the designated subband, as taught by Lilja, as part of the appropriate audible characteristic selection process of Cuddy. The motivation behind such a modification would have been that such a designation and selection strategy would have enabled the prioritized selection of a preferred output subband for the sufficiently different frequency of Cuddy.

Regarding Claim 31, please refer to the above rejection of the similar limitations of Claim 14.

9. Claims 3 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cannon as applied above, and in further view of Lilja, also applied above, and Pohlmann (Pohlmann, K. C. "Principles of Digital Audio", MacGraw-Hill Companies, Inc., 1995. 3rd ed. 1995. page 3).

As discussed above, Cannon discloses a system for adjusting the paging signal emitted from a portable handset of a telephone on the basis of a variety of conditions. One of the disclosed conditions includes ambient noise present in the operating environment of the signal emitting device, wherein the pitch of the signal may be adjusted to not overlap with that of ambient noise (col. 5, lines 4-21).

As part of the non-overlapping frequencies, Cannon does not specify:

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- the determining means are arranged to determine the volume of background noise at different frequencies
- the control means are arranged to produce a tone particularly at such frequencies where the volume of background noise is low

Lilja discloses a method of controlling a telephone ring tone in regards to the volume and frequency spectrum of ambient noise.

Specifically regarding Claim 3, Lilja teaches:

the determining means (180) are arranged to determine the volume of background noise at different frequencies (input from 180 is applied to DSP 200, wherein power spectrum of signal is determined; volume is a relative power level as discussed in further detail below; col. 3, lines 32-63)

the control means are arranged to produce a tone particularly at such frequencies where the volume of background noise is low (col. 4, lines 1-3)

To one of ordinary skill in the art at the time the invention was made, it would have been obvious to utilize the subband power calculations as well as the related subband selection processes of Lilja as part of the circuitry for determining non-overlapping pitch in the system of Cannon. The motivation behind such a modification would have been that such calculation and decision circuitry would have enabled a frequency band to be selected with the lowest relative noise power. Based on the subband determinations, the selection processes of Lilja would have also enabled a preferred subband to be

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designated and utilized based on a maximum-noise threshold determination.

AS noted above, the subbands of Cuddy in view of Lilja, are addressed in terms of power level, rather than volume.

However, the determination of a noise signal's average pressure level is tantamount to determining the average volume level of the signal in the considered frequency bands. As disclosed by Pohlmann, signal amplitude or volume is equivalent to a logarithmic ratio of acoustic or electrical powers (page 3, first paragraph). The denominator of this ratio is equivalent to a reference power, such as the lowest sound pressure level perceivable by humans, which is a constant (page 3, second and fourth paragraphs). Accordingly, the sound power determinations of Lilja in view of the amplitude equation of Pohlmann reads on "determine the volume of background noise of different frequencies".

To one of ordinary skill in the art at the time the invention was made, it would have been obvious to address the background signal measurements of the system of Cannon in view of Lilja in terms of amplitude, as is suggested by the equations of Pohlmann. The motivation behind such a modification would have been that addressing the subband signals in terms of amplitude or volume would have made the processing of the values by a user, such as the specification of a noise level for a preferred subband, more wieldy for a user. It is further noted that the processing of Lilja involves relationships between the selected ring signal volume and the ambient noise pressure

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levels, which further suggests the analogous nature of the two units of measure (col. 4, lines 13-18).

Regarding Claim 22, please refer to the above rejection of the similar limitations of Claim 3.


Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Graham whose telephone number is 703-308-6729. The examiner can normally be reached on Monday-Friday, 8:30 AM to 5:00 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (703)305-4040. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ag
Andrew Graham
Examiner
A.U. 2644
March 5, 2005


SINH TRAN
SUPERVISORY PATENT EXAMINER